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REMARKS

Claims 32, 38, 43 and 45 have been amended as set forth above. Claims 32, 33, 38-40, 43, 45, 47 and 48 remain pending in the application. All other claims have been cancelled in order to expedite prosecution. The undersigned representative reserves the right to file the cancelled claims in a continuation application. The undersigned representative thanks the Examiner for the indication of allowable subject matter in claims 44, 45, 47 and 48. In accordance therewith, claim 32 has been amended to include the limitations of objected to claim 44 and all intervening claims.

With respect to the Examiner's request on Page 3 of the outstanding Office that the undersigned representative explain why references were submitted in the IDSs dated 2/25/2003, 3/6/2003 and 4/15/2003, the undersigned representative submits that each of the references was cited in order to ensure that the undersigned representative's duty under 37 C.F.R. §1.56, as well as the duty attributable to other individuals associated with the filing and prosecution of the present application, has been met. More particularly, the undersigned representative notes that many of the references were cited in other applications and patents having overlapping co-inventors, e.g., Richard Sutherland, Lalgudi Natarajan, etc., that discuss similar subject matter, i.e., polymer-dispersed liquid crystal (PDLC) materials, electrically switchable volume holograms, and the like. By way of example:

(1) the Examiner reviewing United States Patent Application Serial No. 09/033,512 entitled "Switchable Volume Hologram Materials and Devices" from inventors Sutherland et al., cited Patent Nos. 5,198,912, 5,182,180 and 5,096,282 and Ingwall, et al., "Hologram-Liquid Crystal Composites," *SPIE*, Vol. 1555, Computer and Optically Generated Holographic Optics, 1991 (emphasis added);

(2) the Examiner reviewing United States Patent Application Serial No. 09/033,513 entitled "Switchable Volume Hologram Materials and Devices" cited from

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inventors Sutherland et al., cited 5,698,343, 5,661,533, 5,198,912, 4,938,568, 4,942,102, 3,658,526, Sutherland, Richard L., et al., "Electrically Switchable Volume Gratings in Polymer-Dispersed Liquid Crystals," *Appl. Phys. Lett.*, Vol. 64(9), pp. 1074-1076, February, 1994 and Sutherland, Richard L., et al., "Bragg Gratings in an Arcrylate Polymer Consisting of Periodic Polymer-Dispersed Liquid Crystal Planes," *Chem. Mater.*, Vol. 5, pp. 1533-1538, 1993 (emphasis added);

(3) the Examiner reviewing United States Patent Application Serial No. 09/033,514 entitled "Switchable Volume Hologram Materials and Devices" from inventors Sutherland et al., cited Patent Nos. 5,198,912, 5,182,180 and 5,096,282 and Ingwall, et al., "Hologram-Liquid Crystal Composites," *SPIE*, Vol. 1555, Computer and Optically Generated Holographic Optics, 1991 (emphasis added);

(4) the Examiner reviewing United States Patent Application Serial No. 09/034,014 entitled "Switchable Volume Hologram Materials and Devices" from inventors Sutherland et al., cited Patent Nos. 5,725,970, 5,698,343, 5,698,134, 5,695,682, 5,641,426, 5,593,615, 5,356,557, 5,323,251 and WO 89/06264 (emphasis added);

(5) the Examiner reviewing United States Patent Application Serial No. 09/429,645 entitled "Switchable Volume Hologram Materials and Devices" from inventors Sutherland et al., cited Patent Nos. 5,698,343 and 5,166,813 (emphasis added);

(6) the Examiner reviewing United States Patent Application Serial No. 09/347,624 entitled "Switchable Volume Hologram Materials and Devices" from inventors Sutherland et al., cited Patent Nos. 5,942,157 (emphasis added);

(7) the Examiner reviewing United States Patent Application Serial No. 09/363,169 entitled "Electrically Switchable Polymer Dispersed Liquid Crystal Materials Including Optical Couplers and Reconfigurable Optical Interconnects" from inventors Sutherland et al., cited Patent Nos. 5,942,157 and 5,299,289 (emphasis added); and

(8) the Examiner reviewing United States Patent Application Serial No. 09/742,397 entitled "Switchable Polymer Dispersed Liquid Crystal Optical Components" from inventors Sutherland et al., cited Patent Nos. 5,680,233, 5,942,157, 6,115,152, WO 98/04650, JP60189729, Sutherland, Richard L., et al., "Electrically Switchable Volume Gratings in Polymer-Dispersed Liquid Crystals," *Appl. Phys. Lett.*, Vol. 64(9), pp. 1074-1076, February, 1994 and Sutherland, Richard L., et al., "Bragg Gratings in an Arcrylate Polymer Consisting of Periodic Polymer-Dispersed Liquid Crystal Planes," *Chem. Mater.*, Vol. 5, pp. 1533-1538, 1993, and Fondiglia et al., *Optics Letters*, Vol. 20, No. 11 (1995). (emphasis added)

Additionally, various references cited in the submitted IDSs were also submitted/cited in the following applications wherein Dr. Sutherland is a listed inventor:

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(9) United States Patent Application Serial No. 10/235,633 listing Sutherland et al. as inventors entitled "Electrically Switchable Polymer Dispersed Liquid Crystal Materials Including Optical Couplers and Reconfigurable Optical Interconnects" (emphasis added);

(10) United States Patent Application Serial No. 10/303,927 listing Sutherland et al. as inventors entitled "Tailoring Material Composition for Optimization of Application-Specific Switchable Holograms" (emphasis added); and

(11) United States Patent Application Serial No. 10/408,259 listing Sutherland et al. as inventors entitled "Tailoring Fabrication Systems and Processes for Optimization of Application-Specific Switchable Holograms" (emphasis added).

The undersigned representative notes that at least one of the pending claims of the current application included one or more of the following limitations at the time the references were submitted:

- "polymer-dispersed liquid crystal material"
- "hologram"
- "hologram having an electrically controllable variable diffraction efficiency,"  
i.e. switchable hologram
- "polymer-dispersed liquid crystal material is comprised of: (a) a polymerizable monomer comprising at least one acrylate; (b) at least one type of liquid crystal material; (c) a chain-extending monomer; (d) a coinitiator; and (e) a photoinitiator"
- "hologram is switched OFF"
- "hologram is switched ON"

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Though the undersigned representative does not believe that any of the references cited in the submitted Information Disclosure Statements are material under the standard set forth in 37 C.F.R. §1.56(b), the undersigned representative recognizes that a reasonable Examiner may find one or more of the references to be material under said standard and thus submitted such references in accordance with 37 C.F.R. §1.56. Pursuant to 37 C.F.R. §1.97(h), the undersigned representative further understands that the submission of the referenced Information Disclosure Statements "shall not be construed to be an admission that the information cited in the statement is, or is considered to be, material to patentability as defined in §1.56(b)."

With respect to the specific references questioned by the Examiner, i.e., US 5,220,928 and US 5,047,039, the undersigned representative agrees with the Examiner's assessment that these references do not appear to be material to the claims of the current application. These references were cited on the face of United States Patent No. 5,942,157 to Sutherland et al. Patent applications (1)-(8) cited above claim priority to Patent No. 5,942,157 and the specification of the present application explicitly incorporates a majority of the subject matter of Patent No. 5,942,157. Accordingly, the references cited during the prosecution of Patent No. 5,942,157 have been cited in an IDS in the present application.

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CONCLUSION

In view of the amendments to the claims and the remarks stated above, the undersigned representative respectfully requests that the remaining claims be passed to issuance. A notice of allowance to this effect is earnestly solicited. Should the Examiner require further information and/or feel that contacting the undersigned will expedite prosecution, the Examiner is invited to do so at the number provided below.

Respectfully submitted,

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